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ABSTRACT

This study uses empirical analysis of the school lunch and breakfast programs as it has been implemented since 1972 in 28 north Alabama school districts to seek answers to a number of questions concerning the effects of an administration proposal to provide block grants to the states to design and implement their own child nutrition programs. The analysis is guided by the hypothesis that local resources, social structure, and values can and do have significant supportive and perverse effects on participation in mandated federal programs. Multiple regression analysis relates class structure variables (middle class, coalition of poor, and power elite) with the covariates of poverty rate, family size, and total lunches served. Inflation and, in particular, increased food prices since 1972 underpin the increasing explanatory power of the class-structure variables. Most important for the benefit of the poor is the fact that participation corresponds more closely with poverty rates in 1974 than in 1972. (Author/IRT)

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Community Class Structure and School Nutrition Program Participation¹

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Problem An administration proposal to provide "block grants" to the states to design and implement their own Child Nutrition programs has been recently scrutinized by Congressional Sub-committees. While the proposal was rejected by Congress, it is likely to appear again in a more detailed form. The proposal's two major factors deal with "trying to increase the assistance available to those who are truly needy, and also trying to reduce Federal costs" (U.S. Senate, 1975: 35). The administration's wishes to limit Federal support of the program to the "truly needy" raise several questions. How many near-needy children would be priced out of the school-feeding programs? What are the priorities of state and local systems which would be left with the choice of either picking up the tab for the continued participation of the near needy, or increasing the price of lunch 25 percent? Are the near needy influential in setting the priorities of state and local systems? Will local moral standards or power structure influences allow even the needy to participate? Will limiting the program to "truly needy" make it even more uncomfortable for those qualified to participate? Finally, even if the program is given a high priority, are the necessary resources available to the local states and school districts with the largest proportions of near needy?

This study proposes to seek answers to these questions as suggested by empirical analysis of the school lunch and breakfast program as it has been implemented since 1972 in 28 north Alabama School Districts.

The analysis is guided by the hypothesis that local resources, social structure, and values can and do have both significant supportive and perverse effects upon participation in mandated Federal programs. If this hypothesis is supported, can any semblance of equality of results be expected of Federal "block grants" wherein states and local areas design their own programs? At the very least, this study hopes to highlight with data some of the issues in which states would have to focus attention and planning if increasing doses of "home rule" are to find their way into federal legislation.

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On the other hand, those advocating "universal school feeding" - free lunch for all children - may find this study can be used to support their cause. However, they must keep in mind that the local structure and values illustrated by this data are the grass roots of Congressional opposition to "universal school feeding".

Study Population While a state-wide sample of school districts would permit inference to the state of Alabama, this study has been designed to describe the situation in thirteen counties of three regional councils of governments in North Alabama. Organization of this area into a single health-planning region is in progress.

In this region, as of the 1970 census, there were 182,000 youth of school age (6-17). Of this total, 21.9 percent were in families below the poverty line and 29.6 percent below 125 percent of the poverty line. Approximately, 53,000 youth qualify for 174 free lunches and breakfasts each year. At Federal reimbursement rates of 77.75 cents and 34 cents, respectively, the total potential contribution of the program means more than 10 million dollars to the region's schools and economy, to say nothing of the health of its youth. This figure is exclusive of additional benefits received for each reduced-price or paid meal served (Greenstein, 1975).

Obviously, there are some significant economic advantages to full implementation of this program in each district. To think that the program falls several million dollars short of its potential for the region is reason enough for this study. By comparing differences in social structure and values in individual systems within the region, a fuller understanding of the wide variation in implementation of the program is sought.

There are 15 city systems and 13 county systems in the region studied. In the analysis that follows, they are treated as 28 unique school districts with their own superintendents, school boards, and, including social structure, their own decision-making environments.

School Feeding Program Participation The National School Lunch Act requires extensive record keeping of the program activity from individual schools up to state and Federal levels. Also, in accordance with the Act, the records are open to public scrutiny. With continuing enthusiasm, the School Food Service Section of the Alabama State Department of Education has provided intellectual and technical support for the collection and interpretation of the required data.

Participation rates were computed for the free lunch, total lunch (free and paid), free breakfast, and total breakfast (free and paid) programs by dividing the total school attendance for the year into the total number of meals served.

As reported in Table 1, participation in the total lunch program averaged nearly 80 percent in 1972, and it fell to less than 76 percent in 1974. This decline represents a loss of nearly one-half million lunches for the region, apparently due to increased lunch costs and, consequently, the pricing of needy and near-needy students out of the program. There is a standard error of more than eight percent in participation rates of these schools, and it is increasing, even as the average rate declines. The latter observation

suggests increasing unevenness in the implementation of the program. It is likely that in some perverse environments, more poverty families are carrying sack lunches rather than accepting free lunches. In line with increasing lunch costs, the average of the school districts' participation rates increased from about 19 percent in 1972 to nearly 23 percent in 1974. However, an increase in the standard error from 6.52 to more than eight percent suggests greater unevenness in implementing the free-lunch program.

Participation rates in the breakfast program follow similar patterns during the three-year period, but at low levels. No more than half of the 28 schools conducted a breakfast program during the three years. In fact, the number of programs declined from 14 in 1972 to 12 in 1974.

In sum the increase in free-lunch participation during a period of rapid inflation in food prices is to be expected as long as there are non-participating students who qualify. In the same situation with numerous non-participating needy students, it is much more difficult to understand the decline in total program participation.

The principal dependent variable in this analysis is the free-lunch participation rate. Ultimately, it will be analyzed in the context of declining participation in the total program.

Table 1. Mean school feeding program participation rates (and standard deviations) of students in 28 north Alabama school districts

<u>Program</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Lunch (Total)	79.78 (8.07)	77.03 (8.20)	75.71 (8.56)
Free Lunch	19.17 (6.54)	21.66 (8.72)	22.92 (8.17)
Breakfast (Total)	2.42 (3.88)	2.19 (3.89)	2.10 (3.75)
Free Breakfast	1.45 (2.41)	1.54 (2.62)	1.52 (2.49)

Covariates of Free Lunch Participation All schools which participate in the National School Lunch program must make free lunches available to students of families below the poverty line. In addition, as Alabama has done, states are free to set the standard as high as 25 percent above the poverty line. This means, in 1975-76 school year, children from families that comprise a hypothetical four-member household and have incomes below \$6,260 a year are eligible for free meals at school (Greenstein, 1975: 22). Families not meeting these criteria but with other unusual expenses due to high medical costs, shelter costs in excess of 30 percent of income, special-education expenses due to mental or physical conditions of a child, and disaster or casualty losses may apply. These allowances mean that more than the total number of children in families below 125 percent of the poverty line may qualify at any one school at any time. The same qualifications apply to free breakfasts.

A measure of the percent of school-age children who qualify for free lunch and breakfast in any one school district of Alabama is available in the 1970 Census of Population and Housing. This measure is the percent of related children below 18 years of age in families below 125 percent of the poverty line. Assuming that this proportion, hereafter referred to as the poverty rate (PR), holds constant across all ages 0-18 and, that the proportion below the annually adjusted poverty line, holds constant from 1969 through 1974, these ratios provide an acceptable standard for comparison with free-lunch and breakfast participation rates. An additional assumption is required. That is that the proportion not attending public schools is constant across school districts. This is not the case with three districts (Madison county, Huntsville city, and Scottsboro city) which report five to eight percent in private schools. While these students are probably all in families above the poverty line, the poverty data are not adjusted. Therefore, the percent of students below the poverty line in the public schools mentioned is somewhat higher than the census data indicate. Furthermore, it should be noted that the census data are based on 20 percent samples of the total population and are subject to a small margin of random error due to sampling. These errors will reduce the chances of achieving the hypothesized results.

On the average, these 28 systems have 30.6 percent of their youth in families below 125 percent of poverty (Table 2). The standard deviation for the poverty variable (7.69) is similar to those computed for free-lunch participation (Table 1), but the average free-lunch participation rate lag 8 to 10 percent below the poverty criteria employed in Alabama. Full implementation of the free-lunch program would mean on the average more than a 30 percent increase in the number of free lunches served per school in 1974.

Covariates of the dependent variable, which will be introduced one at a time in a series of multiple-regression analyses, include in addition to the poverty rate (PR), the average number of children per family (FS), and the participation rate in the total-lunch program (TL).

Class-structure Variables In Piven and Cloward's "Regulating the Poor" (1971), power is conceptualized as being concentrated in the hands of the elite, who, either directly or indirectly through moralistic indoctrination of the middle class, organize sufficient pressure upon welfare program administrators to regulate benefits, forcing the poor to work. Muraskin (1975), in review of "Regulating the Poor", points out that the moralistic, self-reliant, work-ethic position of the middle class may be an independent variable in its own right and not necessarily subject to conditioning by elite power. In either case, as an independent or as an intervening variable, the moralistic, self-reliant concept should be included in an analysis of variation in welfare program participation.

In the context of the school-lunch program, it may be argued that local businessmen and entrepreneurs are as likely as any group to have a stake in the ready availability of a marginal labor force willing to perform menial work, as needed, at minimum wages. As an indicator of the magnitude of the local power elite, the percent of the labor force which is non-farm self-employed is used. In the case of the self-reliant, middle-class component of the local power structure, the percentage of families who are homeowners is used as an indicator.

The non-farm, self-employed labor force amounts to an average of 9.59 percent of the total labor force in the 28 districts. The standard deviation is 3.36. Percentage homeowners exhibit a mean of 69.02 percent with a 6.98 standard deviation. These mean values are, at least, appropriate proportions to serve as indicators of power elite and middle classes, respectively.

Finally, a theory of government responsiveness to the most powerful pressure, regardless of status, requires some attention. It is possible, however unlikely, that the poor will organize to gain welfare rights. More likely is the possibility that black poor and middle classes will compose a sufficiently powerful pressure group to secure increased participation of all poor in lunch and breakfast programs.

Black leadership in this area has, of course, only been viable and effective since the 1960's. C. Arnold Anderson (1967) notes that the Southern Education Reporting Service (1959) reports a much lower expenditure rate per student in black schools than in white schools under the National School Lunch Act. To index the effect of this coalition for the poor, the percentage of black enrollment in the public school system is included.

The power elite and middle-class pressure group variables, when controlled for covariates of the dependent variable, are expected to have a negative effect on program participation. However, the index of the black pressure-group variable, representing interests of the poor, is expected to have a positive effect on participation. Conventional multiple-regression analysis using ordinary-least-squares estimation procedures is used in the analysis presented in subsequent sections. Inspection of the zero-order correlation matrix, including the three class structure variables and the three covariates of free-lunch participation, suggests no threats of multicollinearity (Johnson, 1972: 159-168).

Poverty rates and free-lunch participation By regressing the free-lunch-participation rate (Y) on the poverty rate (X), estimates of the regression slope (B) and intercept (A) provide an average (or predicted) participation rate (\hat{Y}) for any given poverty rate (X):

$$\hat{Y} = A + BX$$

These estimates may be used to compute an "average under-participation rate" (D) for any given poverty rate (X) by simply subtracting the predicted participation rate (\hat{Y}) from the corresponding full participation rate (Z):

$$\hat{D}X = Z - \hat{Y}$$

Note that the full participation rate (Z in Figure 1) is equal to the poverty rate (X).

Based on an average daily attendance per school district of over 4500 children, each one-percent of under participation (D) implies 45 eligible children are not participating in free lunch. Assuming a meal price of \$.50, 174 meal-

days per year, and two children per family, each family is forfeiting \$174 per year. For school districts with poverty rates near the region's mean ($X = .30$), the \hat{Y} was in 1974, for example, nearly eight percent (Figure 1). Thus, an average of 180 families (8×45) in each district forfeited lunch benefits totaling \$31,320. In districts one standard deviation above the mean poverty rate (38%), about 255 families with two school-age children are affected. These school districts are forfeiting more than \$44,000 in free-lunch benefits each year. Savings on free breakfasts, milk, and reduced price meals would add many more dollars to the wealth of the community.²

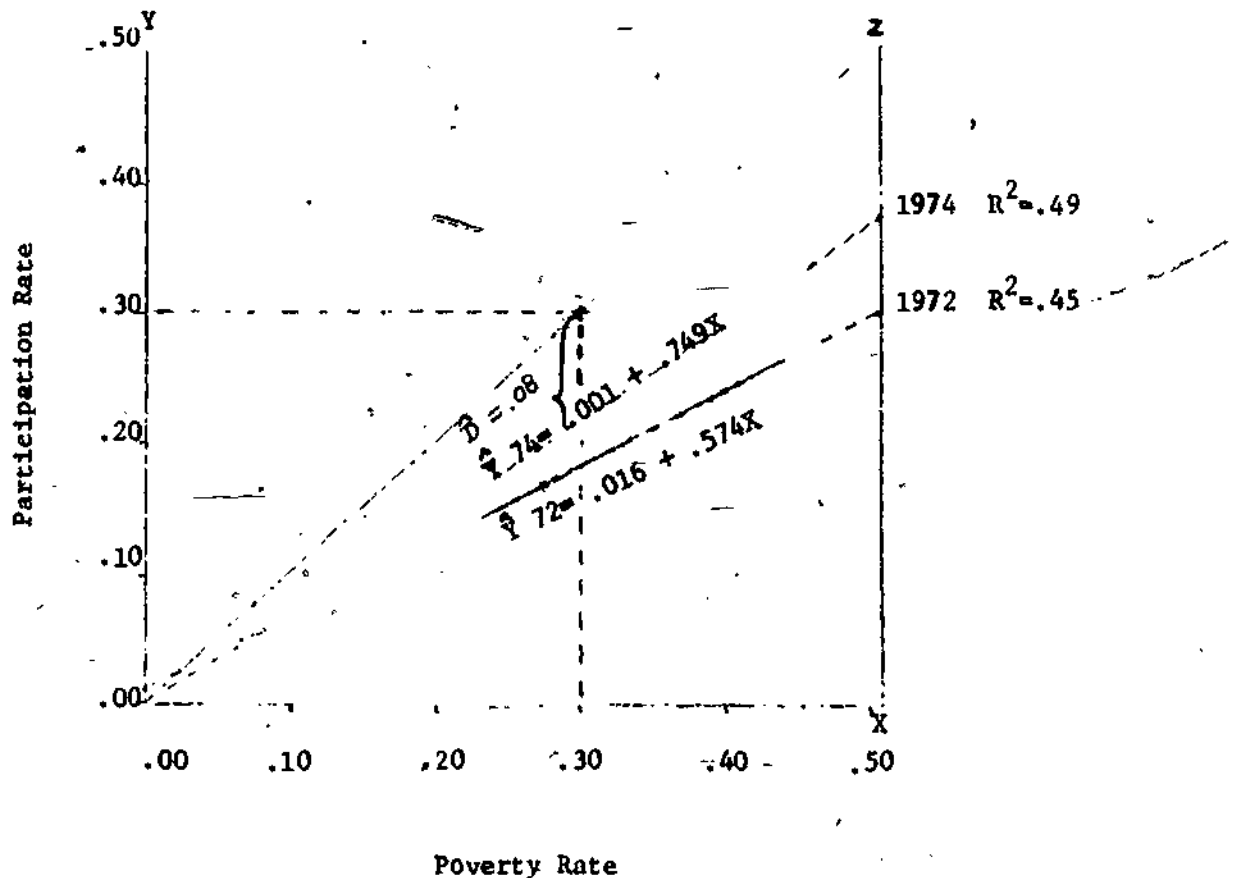


Figure 1. Free-lunch participation rate (Y) for 3 years regressed on the poverty rate (X) (28 school districts) and compared to full participation (Z)

As is evident in Figure 1, there are two signs of improved implementation of the free-lunch program. In addition to the regression slope (B)

2

The average of 4,500 children per school district excludes the Huntsville city system. With Huntsville included, the average is 5,584.

drawing closer to full implementation between 1972 and 1974, also apparent in 1974 is more uniform program implementation. The regressions summarize 45 percent of the variance in participation rates for 1972 and 1973. By 1974, however, 49 percent of the variance is specified by the poverty rate.

Class-structure variables and participation rates Next is the question, "What factors, if any, are impeding or facilitating fuller implementation of the free-lunch program?" Assuming no measurement error, other variables may be responsible for as much as half of the variation in participation rates. Recognizing that no more than four school districts are approaching full implementation, all of the unexplained variance falls below the Z-slope (Figure 1). Therefore, any variable found to be positively related to participation while adding to the variance explained is aiding implementation. On the contrary, negatively related variables adding to the explained variance are responsible for retarding progress.

In Table 2 are found the beta coefficients (β) for multiple-regression analyses for all three years.³ The first presented are the step-wise results (β^0 - β^2) of free-lunch participation regressed on three covariates.

Next are the third-order betas (β^3) for the three class-structure variables controlled for the PR covariate. For all three years, the signs (+) for the class-structure variables are as predicted above. The home-owner and self-employed variables, indicators of middle class self-reliance (MC) and the local power-elites' (PE) economic interests, respectively, both show negative signs. As an indicator of middle-and lower-class coalition for the poor (CP), the percent black enrollment shows a positive sign throughout.

While the magnitude of these coefficients is not great, a β^3 of -.15 in 1974 for PE means that a school district with 3.4 percent, or one standard deviation more self-employment, will have, on the average, more than 54 fewer children receiving free lunch than an otherwise comparable school district. Furthermore, the total incremental variance explained by these three class variables increased from three percent in 1972 to 10 percent in 1974. The dynamics of local power, values, and inflation have clearly demonstrated different and increased impacts upon implementation of the free-lunch program in different communities.

Introduction of a second covariate, FS (β^1 , Table 2), increases the variance explained each year about 10 percent above the zero-order beta (β^0) for PR. Furthermore, the additional covariate does not eliminate the class effects (β^4). In fact, controlling for FS has the effect of tripling the negative effect of MC self-reliance. In 1972, for example, the MC β^3 effect was -.05, but with both covariates (β^4) included, the effect was -.21. Clearly, the price of self-reliance is much less for families with only one child (\$87 per year) than for families with three or four children. On the average, holding poverty and number of children constant, 75 fewer children receive free lunch in a system with 76 percent home-owners (one standard deviation above the mean) compared with an average system of 69 percent home-owners.

Over all, the second covariate, FS, has improved the explanation of variance in free-lunch participation by 10 percent, but the effects of class variables were not eliminated, nor were their signs changed. The incremental

Table 2. Multiple-regression analyses of Free-Lunch-Participation Rates for the 28 school districts of 13 North Alabama counties-1972-1974

Statistical	Class structure			Covariates			R ²
	Middle class (MC) ¹	Coalit. of poor (CP) ²	Power elite (PE) ³	Poverty rate (PR) ⁴	Family size (FS) ⁵	Total lunch (TL) ⁶	
\bar{X}	.690	.103	.096	.306	2.43	See	
S.D.	.070	.095	.034	.077	.374	Table 1	
1972							
r^0	.06	.16	.16	.67	.70	.18	
β_0	-	-	-	.67	-	-	.45
β_1	-	-	-	.36	.44	-	.55
β_2	-	-	-	.36	.46	.25	.61
β_3	-.05	.06	-.14	.74	-	-	.48
β_4	-.21	.01	-.06	.35	.54	-	.59
β_5	-.17	.00	-.14	.41	.52	.25	.65
1973							
r^0	.02	.27	.08	.67	.70	.24	
β_0	-	-	-	.67	-	-	.45
β_1	-	-	-	.35	.45	-	.55
β_2	-	-	-	.35	.47	.28	.63
β_3	-.09	.15	-.16	.76	-	-	.54
β_4	-.25	.11	-.09	.38	.52	-	.64
β_5	-.24	.07	-.09	.36	.55	.25	.70
1974							
r^0	.04	.29	.09	.70	.72	.21	
β_0	-	-	-	.70	-	-	.49
β_1	-	-	-	.39	.44	-	.59
β_2	-	-	-	.38	.46	.24	.65
β_3	-.08	.18	-.15	.78	-	-	.59
β_4	-.22	.14	-.08	.42	.50	-	.68
β_5	-.20	.04	-.18	.46	.51	.24	.73

1. Percent home owners is used to index MC, "self-reliant," values. It is derived from DUALabs (1972a) Data Descriptor Number (DD#) 036001 + 036000.
2. CP is indexed by computing the percent of school enrollment which is non-white, (Center for Business and Economic Research, 1974: Table 14, page 50)
3. PE is indexed by computing the percent of the labor force (16 and over) which is non-farm self-employed, i.e., DUALabs (1972b) DD# (067006 + 067020 / 067000).
4. PR is computed by dividing total children under 18 into total children under 18 in families below 125% of the poverty line, i.e., DUALabs (1972b) DD# (098010 + 098014) / 085000.
5. FS is total related children under 18 divided by total families with related children, i.e., DUALabs (1972b) DD# 085000 + (084002 + 084005 + 084008 + 084011).
6. TL for 1974 is total lunches served divided by total attendance (State Department of Education, 1972-74).
7. \bar{X} = mean, S.D. = Standard deviation, r^0 = zero-order Pearsonian correlation with free-lunch participation and β = the standardized regression coefficient with postscripts (0-5) denoting the number of variables being controlled.

R^2 due to class effects is about the same as it was with the single covariate.

Finally, a third covariate, TL, is introduced. This is an attempt to control statistically for the general quality and acceptance of the school lunch program. As the R^2 is increased 6 to 8 percent, this equation (β^2) shows that over-all participation, independent of PR and FS, does have a positive influence upon the free-lunch program.

The third covariate, like the previous two, does not change the signs of the class effects (β^5). The positive effect of CP is reduced considerably, but the sign remains. This suggests that while the free-lunch program is supported, the total-lunch program enjoys more popular participation in systems with large black enrollments than elsewhere.

Regarding the effects of PE, the introduction of the third covariate reveals an increased negative beta. This effect, particularly in 1974, suggests that where participation of the poor is high, these same families are more likely to pay for their meals than to receive free lunches.

Piven and Cloward's hypothesis of regulation of the poor by a power elite finds support in these results. Either school administrators are responding to direct pressure from the local power elite, or, as significant influentials and employers in the community, they have infused the working poor with a work ethic that prevents them from accepting free lunches while continuing to work for marginal wages. Of course, both influences may be reinforcing one another.

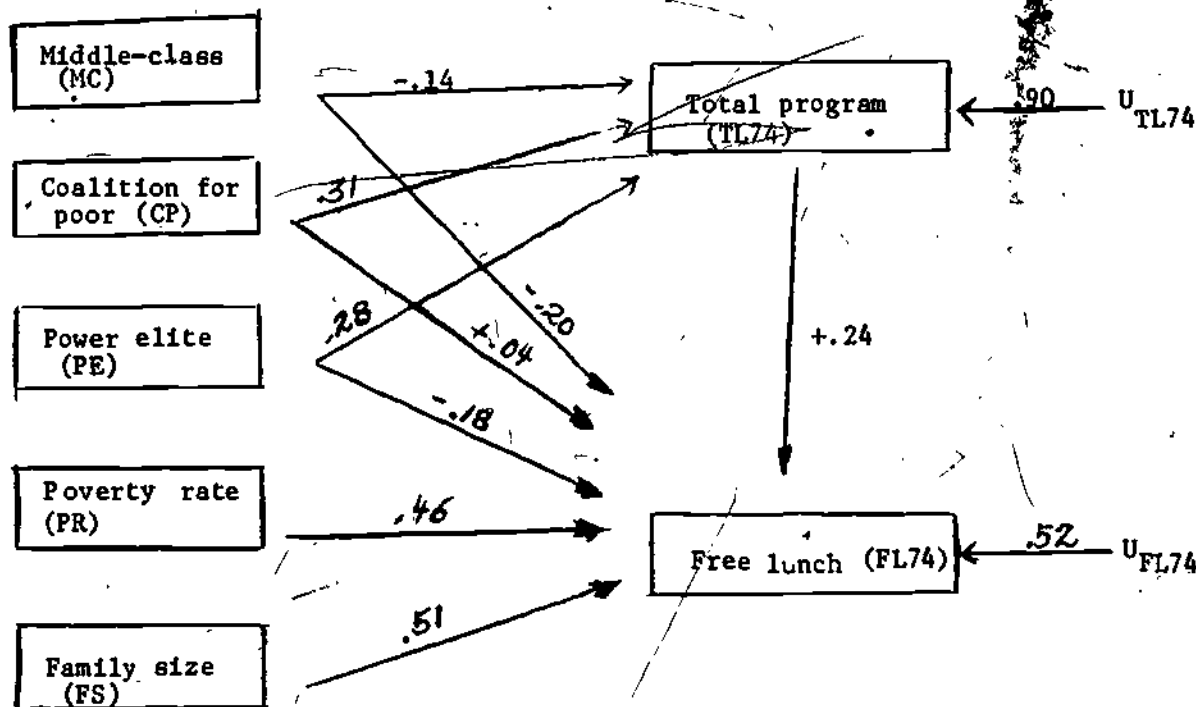


Figure 2. Path diagram depicting direct effects of class structure, covariates and total program participation on free-lunch participation

Summary A closer look at the 1974 case is timely. Not only is it the most current, but also the data reflect the effect of recent rapid inflation on local economic systems. A path analysis (Land, 1969) of free-lunch participation (FL74) is informative. TL74 is treated as a covariate of the dependent variable, which, unlike the other two covariates, intervenes between the class variables and FL74. The path coefficients are presented in the following diagram. To avoid clutter, the zero-order correlations are not included.

In Figure 2, it may be seen that the negative-direct effect of MC (-.20) is complemented by a negative-indirect effect of -.07 (-.14x.24). Not only is the effect of MC on FL74 negative, but also the MC effect upon TL74 is negative. This suggests that, as a result of high meal costs, self-reliance of the middle-class leads to non-participation rather than free-lunch program participation.

Regarding CP, both the direct effect (+.04) and the indirect effect (+.08) are positive, but the indirect effect is stronger, suggesting a relatively healthy acceptance of the total program in districts with larger black enrollments.

Finally, PE has a positive effect (+.28) on TL, as anticipated above, but a positive indirect effect (+.07) and a negative direct effect (-.18) on FL74. These effects fit the description of well-regulated working class community whose poorer citizens, unlike the middle-class communities, have little time or patience to prepare sack lunches or home meals for their children. In spite of poverty or near-poverty conditions, they are more likely to pay than to participate in the free-lunch program, perhaps due to school regulations influenced by the local PE.

Inflation and, in particular, increased food prices since 1972 underpin the increasing explanatory power of the class-structure variables in this analysis of participation in the USDA school-lunch program. Most important for the benefit of the poor is the fact that participation corresponds more closely with poverty rates in 1974 than in 1972. The system is clearly responsive to basic needs of the poor. This responsiveness, however slow, will probably continue until such time as free-lunch participation is nearly in line with poverty rates. Then, like 1972, class-structure variables will add only a negligible amount to the explained variance.

However, such a happy result is not guaranteed. The effect of class differences may increase in times of relative scarcity in the United States as happens in the face of absolute scarcity in most less-developed countries of the world.

Perhaps it is needless to say, but until the arrival of the millennium of school food-service supervisors, universal school feeding, continuous monitoring of the program, including the macro-social accounting style demonstrated in this paper, will be necessary if program administrators are to be as fully informed as is possible.

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